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Translation of Priority Document

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Application Number : Korean Patent Application No. 2001-40622

Date of Application : July 7, 2001

Applicant(s) : Samsung Electronics Co., Ltd.

July 26, 2006

COMMISSIONER

[ABSTRACT OF THE DISCLOSURE]

[ABSTRACT]

There is provided a replaceable sliding cover unit for a folder-type phone
5 having a main body, a folder, and a hinge device for connecting the folder to the
main body rotatably. A slot is formed around the periphery of the folder. A
replaceable sliding cover, having a window at a predetermined position, is
mounted along the slot to cover the upper portion of a folder case and detachable
from the folder by sliding in the length direction of the folder-type phone. A
10 locker fixed the cover in the slot.

[REPRESENTATIVE FIGURE]

FIGURE 1

15 **[INDEX]**

Folder, Replaceable, Sliding

[SPECIFICATION]

[TITLE OF THE INVENTION]

Replaceable Sliding Covering Unit for Folder in Folder-Type Portable
Phone

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[BRIEF DESCRIPTION OF THE DRAWINGS]

FIG. 1 is a plan view of a folder-type phone with a replaceable sliding
cover in a closed state according to an embodiment of the present invention;

FIG. 2 is a side view of the folder-type phone shown in FIG. 1;

10 FIG. 3 is a plan view of the folder-type phone with the replaceable
sliding cover removed according to the embodiment of the present invention;

FIG. 4 is a side view of the folder-type phone shown in FIG. 3;

FIG. 5 is a plan view of the replaceable sliding cover according to the
embodiment of the present invention;

15 FIG. 6 is a bottom view of the replaceable sliding cover according to
embodiment of the present invention;

FIG. 7 is a sectional view of the replaceable sliding cover shown in FIG.
6, taken along line A-A;

FIG. 8 is a plan view of a folder-type phone with a replaceable sliding
20 cover, from which the replaceable sliding cover is removed according to another
embodiment of the present invention;

FIG. 9 is a sectional view of a locker shown in FIG. 8; and

FIG. 10 is a plan view of the replaceable sliding cover according to the
second embodiment of the present invention.

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[DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT]

[OBJECT OF THE INVENTION]

[RELATED FIELD AND PRIOR ART OF THE INVENTION]

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The present invention relates generally to a folder-type phone, and in

particular, to a replaceable sliding cover unit by which the exterior color of a folder-type phone can be changed.

Portable phones are usually categorized into a bar type, a flip type, and a
5 folder type according to their appearances and into a wrist type and a neck
wearable type according to where they are carried. Or according to their
functions, they are divided into phones for voice communication, for pictures
transmission, and for Internet access. Along with the advent of a multimedia era,
more portable multi-functional phones will be used.

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At present, bar-type phones, flip-type phones, and folder-type phones are
widely used. Among them, the flip type and the folder type are more popular
because they are favorable for small size and lightweight bodies.

15 To take a known folder-type phone for example, it is comprised of a
main housing, a folder, and a hinge device that connects the main housing to the
folder in such a manner that the latter rotates up to a speech angle with respect to
the former. Needless to say, the main housing is provided with a microphone and
the folder with a speaker. The structure of this conventional folder-type phone is
20 well known to those skilled in the art.

A keypad with a plurality of keys is used as a data input portion and an
LCD (Liquid Crystal Display) as a data output portion for the conventional
portable phone. A touch screen or a touch pad is also used as a data input portion.

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The conventional folder-type phone, however, has the drawback that its
exterior, especially of a body or a folder is fixed in a single color. In view of its
structure of being rotatably connected to the main body by the hinge device, the
folder itself cannot be replaced. If necessary, an expert should deal with it. On
30 the user side, once a portable phone is purchased, its color cannot be changed.

Therefore, the user may feel bored about the color of the portable phone.

[SUBSTANTIAL MATTER OF THE INVENTION]

5 It is, therefore, an object of the present invention to provide a replaceable sliding cover unit by which the color of a folder can be changed in a folder-type phone.

 It is another object of the present invention to provide a replaceable
10 sliding cover unit for a folder in a folder-type phone, which can satisfy user's tastes.

 It is a further object of the present invention to provide a cover unit
replaceable by sliding for a folder in a folder-type phone.
15

 The foregoing and other objects can be achieved by providing a
replaceable sliding cover unit for a folder-type phone having a main body, a
folder, and a hinge device for connecting the folder to the main body rotatably. A
slot is formed around the periphery of the folder. A replaceable sliding cover,
20 having a window at a predetermined position, is mounted along the slot to cover
the upper portion of a folder case and detachable from the folder by sliding in the
length direction of the folder-type phone. A locker fixed the cover in the slot.

[CONSTRUCTION AND OPERATION OF THE INVENTION]

25 Preferred embodiments of the present invention will be described
hereinbelow with reference to the accompanying drawings. In the following
description, well-known functions or constructions are not described in detail
since they would obscure the invention in unnecessary detail.

While it is to be appreciated that the present invention is applicable to any folder-type phone, embodiments of the present invention will focus narrowly on the folder of the folder-type phone as shown in FIGs. 1 and 2.

5 Referring to FIGs. 1 and 2, the folder-type phone is comprised of a main body 10, a folder 20, and a hinge device that connects the folder 20 to the main body 10 rotatably. Since FIG. 1 shows the state where the folder 20 is closed to the main body 10, the main body 10 is covered with the folder 20, only a side hinge arm 101 shown to protrude in both ways from the main body 10.

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A center hinge arm 201 is used to connect the folder 20 to the side hinge arm 101 rotatably on a hinge axis H. A hinge module (not shown) is mounted inside the center hinge arm 201. Thus the folder 20 is opened up to about 135 to 150° on the hinge axis H.

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Referring to FIGs. 3 and 4, the folder 20 has a case 22 for protecting at least one LCD (a main LCD and a sub-LCD), an FPCB (Flexible printed Circuit Board), a speaker and a vibrator therein, and a replaceable sliding cover 30 slidably removable from the case 22. The sub-LCD 21 is shown to be provided 20 to the folder 20, while the main LCD, the FPCB, the speaker, and the vibrator mounted in the main body 10 are not shown in the figures.

A slot S is formed around the outer circumference of the folder 20. The replaceable sliding cover 30 is mounted to cover the upper portion of the folder 25 20 along the slot S. More specifically, the cover 30 is combined with the case 22 in a sliding way to cover the upper portion of the case 22. Here, the cover 30 can be removed from the folder 20, sliding in the length direction of the phone, that is, in a direction indicated by reference numeral (1) in FIG. 2. The cover 30 includes a locker and at least one holder to maintain the mounted state of the 30 cover 30 to the folder 20.

Referring to FIGs. 3 to 7, the locker functions to fix the cover 30 in the slot S after the cover 30 is inserted along the slot S. The locker is comprised of protrusions 24 at both sides of the case 22 and grooves 34 formed at
5 predetermined positions of the holder 32, for holding the protrusions 24. The protrusions 24 are near to the slot S, more specifically in the vicinity of the center hinge arm 201 and the grooves 34 are disposed at positions corresponding to the protrusions 24.

10 One or more holders 32 are formed at predetermined intervals along the periphery of the cover 30. A groove 26 (see FIG. 4) is formed in the same shape as the slot S, to hold the holder 32. The holder 32 according to the present invention prevents the cover 30 from sliding off from the folder 20 in the length direction after the cover 30 is mounted to the folder 20, and surrounds the case
15 22.

Now there will be given a description of a folder-type phone with a replaceable sliding cover according to another embodiment of the present invention with reference to FIGs. 8, 9, and 10. The replaceable sliding cover
20 according to the second embodiment is the same as that according to the first embodiment except that it has a different locker.

In the second embodiment of the present invention, a different locker is used to secure the replaceable sliding cover 30 to the case 22 of the folder 20.
25 The locker is set to a locking state or a locking release state with the aid of the elasticity of a plate spring 40. Specifically, the locker includes a fixed end 41 and a free end 42. The fixed end 41 is fixed to the bottom surface of the case 22 by a screw 44 and the free end 42 has a protrusion 43. The protrusion 43 is disposed in an opening 22c formed into the case 22 to move up and down
30 according to whether the replaceable sliding cover 30 is pushed onto the folder

20 or pulled away from the folder 20. An opening 45 is formed at a predetermined position of the replaceable sliding cover 30 so that the protrusion 43 is inserted into the opening 45 to fix the replaceable sliding cover 30.

5 When the replaceable sliding cover 30 is pushed slidably onto the case 22, the protrusion 43 moves slightly down and the upper end of the protrusion 43 contacts the bottom surface of the replaceable sliding cover 30. Then, when the protrusion 43 is inserted into the opening 45, the replaceable sliding cover 30 is locked in the case 22. On the contrary, to detach the replaceable sliding cover 30
10 from the case 22, it is forcibly pulled. At the same time, the bottom surface of the replaceable sliding cover 30 slides away over the protrusion 43 and the protrusion 43 slides off from the opening 45. By pulling the replaceable sliding cover 30 further, it is completely removed from the case 22.

15 The plate spring 40 further includes a guide 22a protruded from the bottom surface of the case 22 to guide the protrusion 43 stably up and down. Reference numeral 22b indicates an engagement boss for engaging a screw.

 Accordingly, a user can carry a plurality of covers to offer an intended
20 color, pattern, or feeling to the exterior of a folder-type phone since the covers are so configured as to be replaceable from the folder. While the invention has been shown and described with reference to certain preferred embodiments thereof, it will be understood by those skilled in the art that various changes in form and details may be made therein without departing from the spirit and scope
25 of the invention.

[EFFECTS OF THE INVENTION]

 As described above, since the object of the present invention is to
30 provide a replaceable sliding cover unit for a folder in a folder-type phone, which

can satisfy user's tastes, user's various desires are satisfied. Further, since there is provided a cover unit replaceable by sliding for a folder in a folder-type phone, the exterior of a folder-type phone is variously implemented.

[PATENT CLAIMS]

1. A replaceable sliding cover unit for a folder-type phone having a main body, a folder, and a hinge device for connecting the folder to the main
5 body rotatably, comprising:

a slot formed around the periphery of the folder;

a replaceable sliding cover having a window at a predetermined position, mounted along the slot to cover the upper portion of a folder case, and detachable from the folder by sliding in the length direction of the folder-type phone; and

10 a replaceable sliding cover unit comprising locker for fixing the cover inserted in the slot.

2. The replaceable sliding cover unit of claim 1, wherein the cover further comprises a window.

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3. The replaceable sliding cover unit of claim 2, wherein the window is transparent.

4. The replaceable sliding cover unit of claim 1, further comprising
20 at least one holder.

5. The replaceable sliding cover unit of claim 4, wherein the holder comprises:

a groove formed along the slot; and

25 protrusions formed at the periphery of the cover to be held in the groove so that the lengthwise deviation of the cover is prevented.

6. The replaceable sliding cover unit of claim 1, wherein the locker comprises:

30 protrusions formed to face each other at both sides of the folder case; and

grooves at positions of the holder corresponding to the protrusions.

7. The replaceable sliding cover unit of claim 6, wherein the protrusions are formed near a center hinge arm of the folder.

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8. The replaceable sliding cover unit of claim 6, wherein the locker comprises:

a plate spring having a fixed end fixed to the bottom surface of the folder case and a free end with a protrusion, the protrusion disposed in an opening of the folder case to move up and down according to whether the replaceable sliding cover is detached from the folder or mounted onto the folder; and

an opening formed at a predetermined position of the replaceable sliding cover to hold the protrusion of the free end so that the replaceable sliding cover is secure to the folder case.

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9. The replaceable sliding cover unit of 6, wherein the plate spring further comprises a guide protruded from the bottom surface of the folder case to guide the motion of the plate spring.

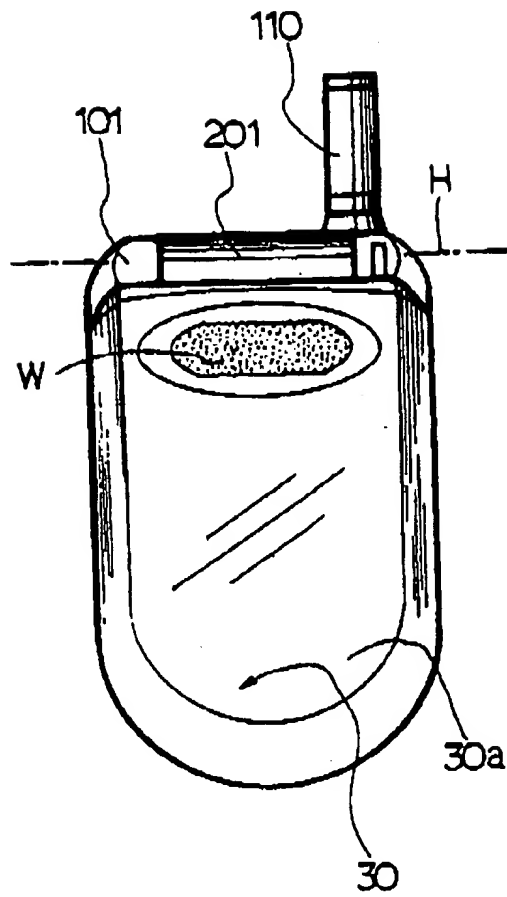


FIG. 1

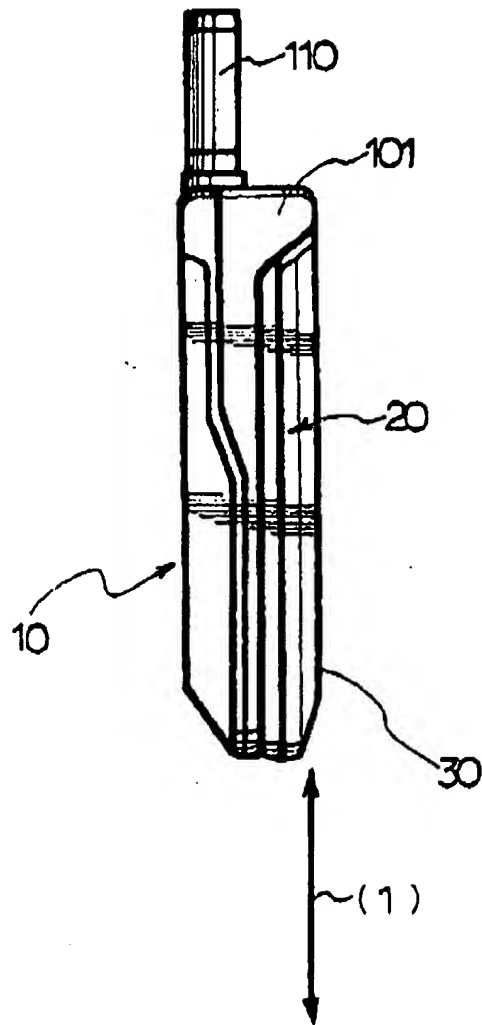


FIG. 2

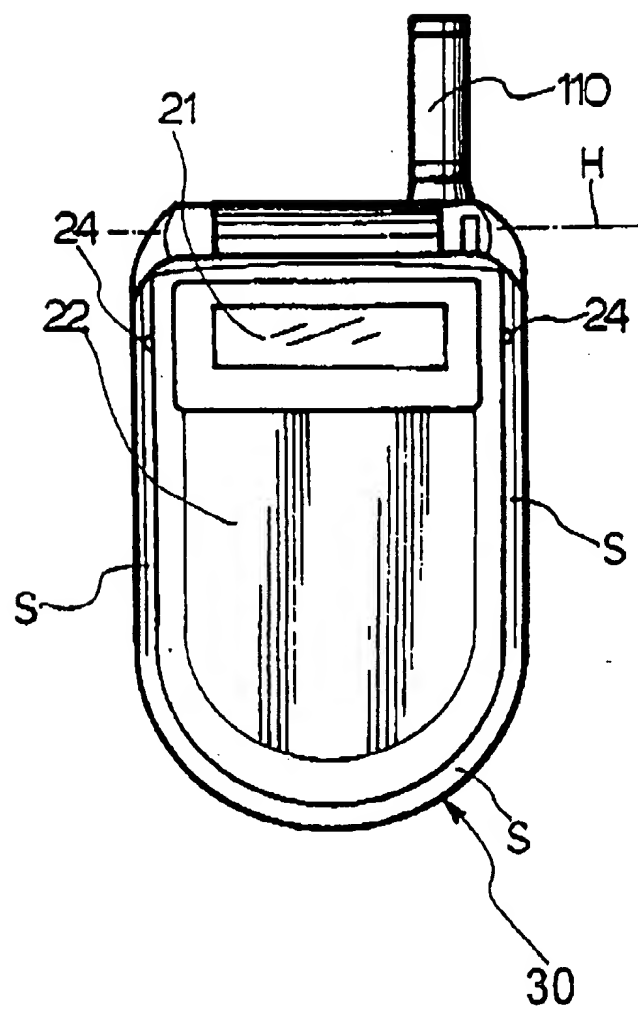


FIG. 3

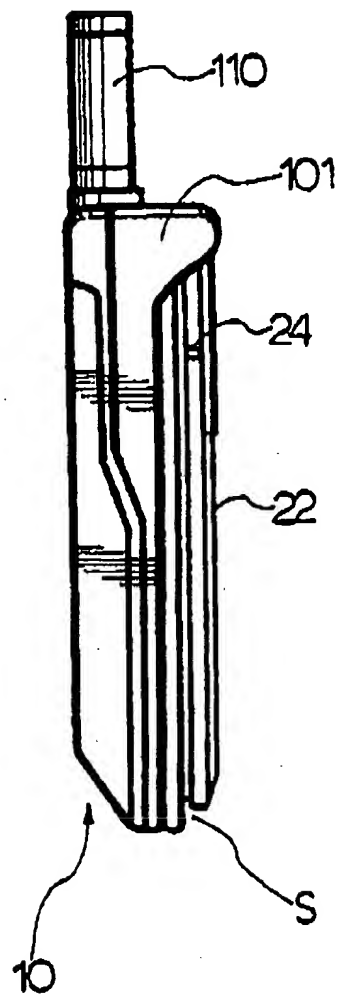


FIG. 4

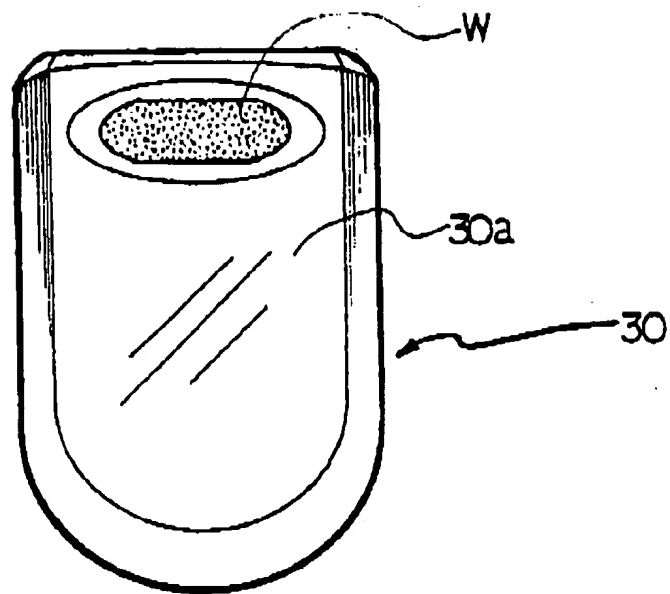


FIG. 5

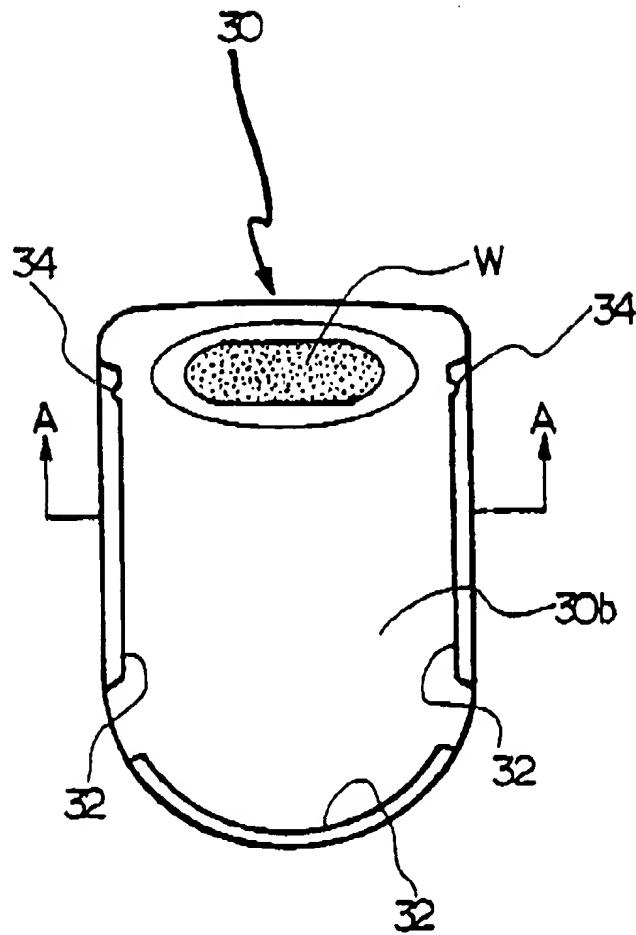


FIG. 6

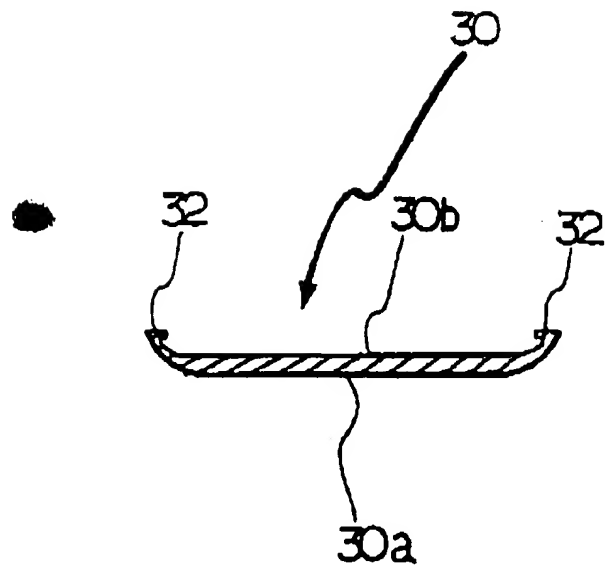
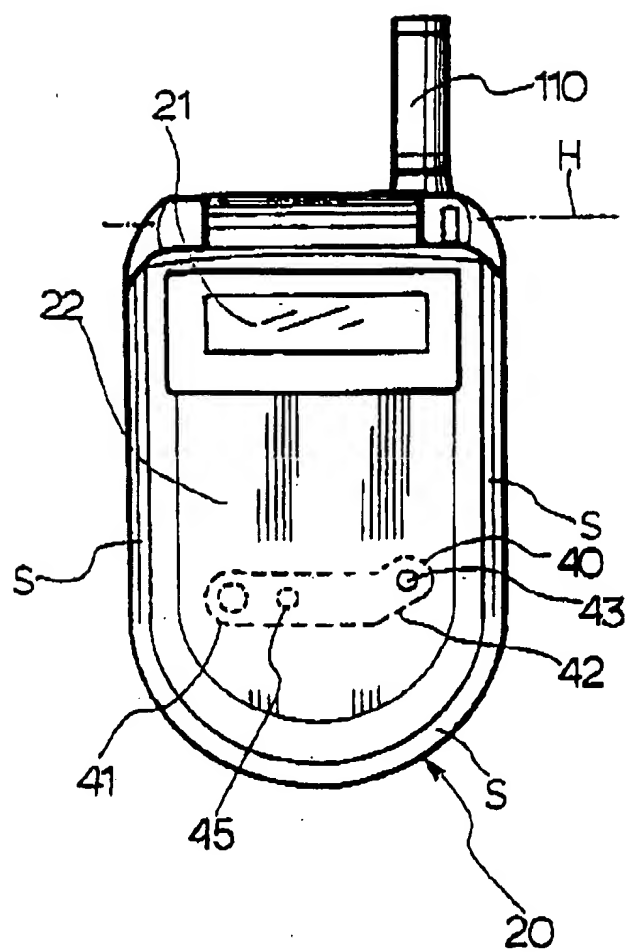


FIG. 7

**FIG. 8**

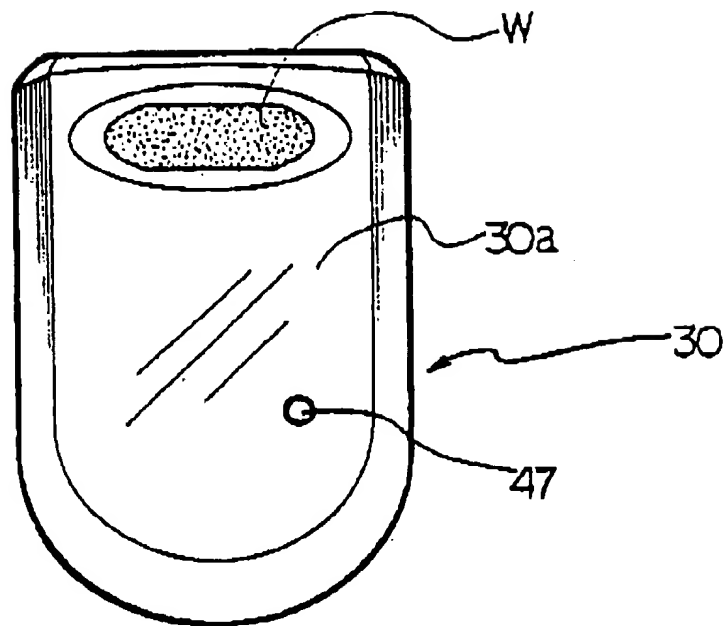


FIG. 9

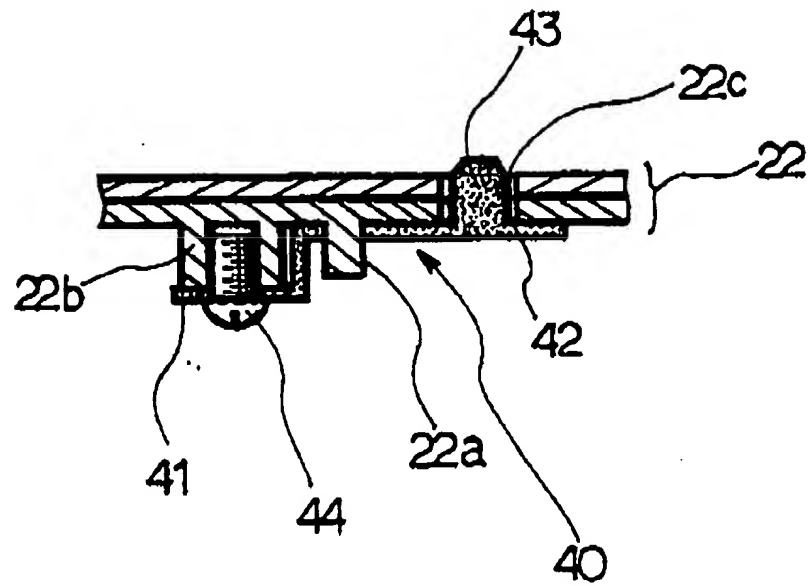


FIG. 10